

2006-2007 NASA Science Mission Directorate: Earth Science Education Products Review

Resources Review Form

This review form was designed for evaluating NASA educational resources. Educational resources can be used to supplement curriculum materials and/or as content for instructors and students. Examples include fact sheets, lithographs, posters w/activities, video/audio tapes, WWW sites, etc. This category also includes tools that could be used by curriculum/product developers to create new education products, such as: catalogs (e.g., images or video), software (e.g., tools to look at and analyze data or create learning materials), explained imagery, maps, video clips, scientific visualizations, etc.

General Instructions:

- Complete one form for each resource that you are evaluating.
- Please evaluate the materials based upon the following scale, in response to the criteria provided.

Outstanding	or	Numerous examples/evidence consistently found throughout the materials.
Very Good	or	Numerous examples/evidence found in some components of the materials
Good	or	Some examples/evidence consistently found throughout the materials.
Fair	or	Some examples/evidence found in some components of the materials.
Poor	or	Little or no examples/evidence found in the materials.
- All of the examples provided for each criterion may not apply to a product (and are not required to apply to every product). Examples are not presented in rank order, but are alphabetized so that you can easily refer to specific items (e.g., "regarding a., this product...")
- Check the appropriate rating next to each criterion.
- Reviewer notes should be written in the space following each criterion. Extra pages may be added if needed. Please be as specific as possible.
- Note the rating for each criterion and provide an overall assessment on the summary page (next to last page).
- Provide your overall recommendation on the "Recommendation" page (last page).

Resource Title: _____ **No.** _____

Criterion 1: Materials are appropriate, complete, and effectively presented

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

- a. Materials are appropriate for the age, grade, and maturity of the target audience.
- b. Current, up-to-date information is provided.
- c. Instructional or explanatory materials are effective and well-written; acronyms and terms are clearly explained; information is presented in a logical and organized manner, answers are provided to all specific questions asked.
- d. Graphs, charts, images, and animations are clearly labeled/indicated/narrated, including color keys where appropriate, and information describing units of measurements that are used (e.g., what these units mean and how they compare to familiar examples), and clear distinctions between scientific data and simulated data/artist renditions.
- e. Material is appropriately engaging, stimulating, and/or entertaining for the target audience.

Reviewer comments:

Criterion 2: Production/design quality is high.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

NOTE: NASA requires all products to go through a Communications Material Review (CMR) following the education product review. The CMR examines materials for their conformance to NASA visual guidelines. For this reason, reviewers should look beyond appearance and layout issues, which will be addressed by the CMR.

Further, some products being reviewed may still be in an unfinished state so that recommendations from the education product review may be implemented along with design changes that may be required by the CMR. The product submission form may contain additional information about the planned design and format of the final product. Please consult developer notes in the product submission form.

- a. Design seems effective, visually stimulating, and appealing (even if in a draft state).
- b. Visuals/images are crisp, clear, and/or high-resolution.
- c. Video/audio quality is high.
- d. The material is free from production errors (e.g., misspellings, typos, grammatical and editorial errors).

Reviewer comments:

Criterion 3: Materials effectively integrate learning technologies.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

Learning technologies may be used in the following ways:

- a. to make measurements and perform calculations, e.g., probeware, hand-held data collectors, computers, and calculators.
- b. to collect, organize, analyze, and present data, e.g., spreadsheets and graphics packages.
- c. to access and communicate information, e.g., telecommunications, Internet, databases, and word processing.
- d. to explore and/or simulate complex relationships, e.g., modeling programs.
- e. to develop conceptual understanding, e.g. CD-ROM, DVD and videos.

Reviewer comments:

Criterion 4: The content presented is accurate.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

The product presents content accurately. Consider the following:

- a. The material is free from content errors (e.g., scientific and mathematical inaccuracies, incorrect facts or statements, theory and fact are adequately distinguished).
- b. The material addresses common misconceptions.
- c. The metric system of weights and measures is consistently used (e.g., Celsius, grams, liters, meters) or metric equivalents are provided.

Reviewer comments:

Criterion 5: The product provides good and relevant references for further investigation/information.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

- a. Suggestions are noted for relevant extensions, science fair or other research projects.
- b. References, e.g., WWW sites, books, organizations, toll free numbers, etc. are identified for further investigation, so that someone wanting to learn more about the topic can do so.
- c. Contact information is provided, where appropriate, for technical support, questions, and/or further information in using the product.

Reviewer comments:

Criterion 6: The product is easy to use and free from technical difficulties.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

For technology-based products, consider the following:

- a. The user interface is intuitively easy to understand and master.
- b. Instructions are easy-to-follow, clear, and complete.
- c. The product is quick loading, user friendly, well organized, and structured.
- d. Ease of navigation: not too many levels to click through, easy to move forward, backward, and "escape" easily (e.g., back to the home page, to quit, etc.), and updates are easy to find.
- e. Documentation and any technical requirements for using the resource are specified.
- f. The product is free from technical difficulties (e.g., doesn't freeze, no error messages, links to WWW sites are up-to-date).
- g. Where appropriate, useful online help is provided.
- h. Text and graphics are appropriate for the content: for example, on WWW sites image files are as small as possible to do the job and load quickly, text is legible, background does not interfere with reading.
- i. Design avoids excessive or inappropriate scrolling, especially lateral scrolling.

Reviewer comments:

Criterion 7: Product is accessible.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

- a. WWW sites are identified (either on the Website or on the product submission form) as "508 Compliant" – accessible to disabled users.
- b. Software/CD-ROMs are available for dual platforms (Windows and Macintosh).
- c. Electronic versions of documents are available in PDF. PDF files are 508 compliant.
- d. Images are available in easily-accessible formats, e.g., gif, tiff, jpeg.
- e. Image files are provided at an appropriate resolution. For example, low-resolution images and graphics may be preferable (e.g., for quickly loading on a Website); high-resolution versions of images might be necessary (e.g., for student interpretation, printing, etc.); or both low and high-resolution versions may be required (e.g., for Web and print versions)
- f. Animations/video/audio are available in a format that is easily used by broad audiences: e.g., videotape, DVD, CD, Real One audio/video, Windows Media Viewer (WMV), QuickTime, etc.
- g. WWW pages can be easily printed.
- h. Videos include closed captioning for the hearing impaired.

Reviewer comments:

Criterion 8: Does the site require parents' permission before collecting personal information from children younger than 13?

Web sites for children under 13 that collect personal information from children or general audience Web sites that collect personal information from children (information that would allow someone to identify or contact the child), must comply with the Children's Online Privacy Protection Act (COPPA). For more information, see <http://www.ftc.gov/ogc/coppa1.htm>.

Personal information is individually identifiable information about a child that is collected online, such as full name, home address, email address, telephone number or any other information that would allow someone to identify or contact the child. The Act and Rule also cover other types of information-- for example, hobbies, interests and information collected through cookies or other types of tracking mechanisms -- when they are tied to individually identifiable information.

The primary goal of COPPA is to place parents in control over what information is collected from their children online. Only answer these questions if the site is targeted for children under 13 years old AND collects personal information.

a. Has the Web site operator posted their privacy policy on the site?

Yes No Can't Tell Not Applicable

b. Does the site require parents' permission before collecting personal information from children younger than 13?

Yes No Can't Tell Not Applicable

Reviewer comments:

Criterion 9: Customer Focused: Materials have been designed to meet the needs of the target audience.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

- a. The target audience (e.g., teachers, faculty, students) would find the product meaningful and/or useful.
- b. The format of the product is accessible and easily useable by the target audience. For example, online files are in a standard format (PDF) and are easy to download or broken into appropriate sections; posters with text on the back are formatted in 8 1/2" x 11" pages so that they are easy to photocopy, etc.
- c. Appropriate tools are provided for using the product (e.g., suggestions for the classroom, links to needed software, education standards are identified, etc.)

Reviewer comments:

Criterion 10: Product supports NASA Science Mission Directorate: Earth Science Education Goals and Objectives.

Rating: Outstanding Very Good Good Fair Poor

{The following are given as a range of examples. Not all examples are expected to be addressed in every product. Do not use these suggestions as a checklist.}

The product supports one or more NASA Earth Science education goals and objectives:

NASA Earth Science Education Goals and Objectives

Goal 1: Inspire and motivate students to pursue Science, Technology Engineering, and Mathematics (STEM) careers relevant to Earth system science and Earth science applications and technology.

Objectives:

- a. Elementary and Secondary Education: Draw upon the compelling nature of Earth system science to promote student achievement and enrollment in STEM (science, technology, engineering, and mathematics) courses.
- b. Higher Education: Ensure the continued training of a highly qualified and diverse workforce to support Earth system science research and Earth science applications.
- c. Underrepresented and Underserved Participation: Inspire and support underrepresented and/or underserved communities through each sponsored education program.
- d. E-Education: Increase student, teacher, and public access to Earth system science resources via electronic information infrastructures.

Goal 2: Increase public scientific literacy of Earth system science and climate change by engaging the public in shaping and sharing the experience of NASA's exploration and discovery.

Objectives:

- a. *Informal Learning Institutions:* Provide engaging Earth system science content and human resource support to informal learning institutions for the benefit of all learners.
- b. *Informal Learning Environments:* Cultivate citizens' abilities to get the data, resources and information they need to satisfy their own curiosity on how the Earth system works and/or to take actions to meet individual or societal needs.

Reviewer comments:

Criterion 11: Material is relevant to NASA-unique Science Mission Directorate (SMD) Content

Rating: Outstanding Very Good Good Fair Poor

NASA SMD products/programs should be centered on and draw upon NASA's unique assets in Earth or Space Sciences: content/information (acquired through NASA science and technology programs and missions); facilities and tools (including observational datasets); or people (including NASA employees and NASA-sponsored scientists, technical and engineering experts) in at least one of the following areas:

- Earth System Science,
- Sun-Earth Connection,
- Solar System Exploration,
- Structure and Evolution of the Universe, or
- Astronomical Search for Origins.

Following are a range of examples for Earth System Science. Do not use these examples as a checklist. Not all examples under each area are expected to be addressed by every product; it's acceptable for an education product to focus on only one of the examples given.

Earth System Science

A. Overall NASA Earth science Mission: to develop a scientific understanding of the Earth system and its response to natural or human-induced changes and improve prediction capabilities for climate, weather, global air quality and natural hazards.

B. NASA Earth science Focus Areas and Prediction Questions

- Climate Variability & Change -- How can predictions of climate variability and change be improved?
- Atmospheric Composition -- How will future changes in atmospheric composition affect ozone, climate and air quality?
- Carbon Cycle, Ecosystems & Biogeochemistry -- How will carbon cycle dynamics and terrestrial and marine ecosystems change in the future?
- Water & Energy Cycle -- How will water and energy cycle dynamics change in the future?
- Weather Forecasting -- How can weather forecast duration and reliability be improved?
- Earth Surface & Interior -- How can our knowledge of Earth surface change be used to predict and mitigate natural hazards?

C. NASA Earth Science Applications Program Goal

- Expand and accelerate the realization of economic and societal benefits

Reviewer comments:

Criterion 12: Other reviewer comments

Provide comments on any perceived good or bad qualities that were not measured by any of the previous criteria.

Earth Science Education Resource Review Summary

Criteria	Rating				
1. Appropriate/Complete/ Effective Information	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
2. Production/Design Quality is high	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
3. Effectively integrate learning technologies	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor <input type="checkbox"/> N/A
4. Content is accurate	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
5. Good references for further investigation	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
6. Ease of Use/Free from Technical Difficulties	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor <input type="checkbox"/> N/A
7. Accessibility	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor <input type="checkbox"/> N/A
8. Conformance with COPPA					
Posted Privacy?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Can't Tell	<input type="checkbox"/> N/A	
Parent's Permission?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Can't Tell	<input type="checkbox"/> N/A	
9. Customer Focused	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
10. Supports Earth Ed. Goals	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
11. Relevance to SMD content	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor
Overall Assessment	<input type="checkbox"/> Outstanding	<input type="checkbox"/> Very Good	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Poor

Summary Comments:

Recommendation

Check your recommendation(s) for this product:

- Recommended: The product is an excellent candidate for broad distribution or availability, for example, at education conferences, on a WWW site, etc.
- Recommended as is, with revisions on next printing/edition. Note to reviewers: the material may not be re-printed/revised, do not select this option if you believe the revisions are necessary before continued distribution/availability by NASA. (**Provide notes on recommended revisions**).
- Recommended -- Distribution through Teacher Workshops. This product is recommended for distribution through NASA teacher training sessions and workshops. Most teachers would require some introduction or training for effective use.
- Recommended -- Limited Audience. This product would be useful to limited audience, for example, very advanced users, lower/higher education level than originally identified, a limited topic area/course, a limited geographic area, etc. Provide notes below describing this audience.
- Needs Minor Revisions: The overall approach is very good, but **minor** revisions are needed before this product is distributed or recommended by NASA. “**Minor**” is not meant to indicate that the revisions aren’t important to make, but that they can be easily made. The material is generally free of scientific errors/misconceptions or obvious pedagogical problems; if there are errors they can be easily corrected. These products are not required to go back through the panel review process once they have been revised.

Examples of minor revisions include:

- Few text edits/minor text additions (e.g., grammatical errors, misspellings, and typos)
- Minor corrections to images or graphics
- Minor re-organizing of the material
- Online Products: a few broken links on a Web site (It is “Minor” due to ease of correcting.)
- Hard Copy Products: broken WWW links in a hard copy product, which are not critical to implementation (e.g., links to further reading/information).

- Needs Medium Revisions: The overall approach is sound, but revisions are required before this product is distributed or recommended by NASA. Depending on the extent of revisions to be made, NASA education program managers may require these products to go back through the panel review process after they have been revised.

Examples of medium revisions include:

- Large number of text edits/additions throughout the material (e.g., grammatical mistakes, typos, misspellings)
- Corrections to more than a few images or graphics
- Sections that suffer from organizational or presentational difficulties
- Numerous broken links on a Web site
- Several broken Web links on a hard copy product, which are not critical to the implementation of the product (e.g., links to further information/research)
- Few scientific errors/misconceptions (perhaps limited to a single section, chapter, unit or lesson)
- Isolated sections/chapters/units/or lessons that contain obvious pedagogical problems

- ❑ Needs Major Revisions: This product has potential, but **major** revisions are required to the overall approach before it is distributed or recommended by NASA. Products that are recommended for “major revisions” are required to go back through the panel review process after they have been revised.

Examples of major revisions include:

- Numerous or major scientific errors/misconceptions.
 - Serious problems with the overall approach to the subject, organization, structure, or presentation that renders it ineffective or difficult to use.
 - Pedagogical approach needs significant work for the intended audience (e.g., reading level, cognitive approach, scope/sequence, etc.).
 - Broken links in a printed document, which are critical to the implementation of the product.
- ❑ Not Recommended: NASA should take this product out of circulation/not release it as an EARTH SCIENCE education product. The quality is poor, the material dated, or it is not relevant to NASA's Science Mission Directorate: Earth Science.
 - ❑ Other (**Specify**):

NOTES:

Reviewer Name: _____

Product Title: _____ **Number:** _____